

HP

# Storage Essentials 5.0 Application Guide



T3710-96004

Part number: T3710-96004  
First edition: September 2005



## **Legal and notice information**

© Copyright 2005 AppliQ Inc.

© Copyright 2005 Hewlett-Packard Development Company, L.P.

Hewlett-Packard Company and AppliQ Inc. makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard and AppliQ shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

This document contains proprietary information, which is protected by copyright. No part of this document may be photocopied, reproduced, or translated into another language without the prior written consent of Hewlett-Packard. The information is provided "as is" without warranty of any kind and is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP and AppliQ shall not be liable for technical or editorial errors or omissions contained herein.

Windows are registered trademarks of Microsoft Corporation. Oracle is a registered trademark of Oracle Corporation. Sun, Solaris, Sun StorEdge, and Java are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries. AIX and IBM are registered trademarks of International Business Machines Corporation in the United States, other countries or both. SGI and IRIX are registered trademarks of Silicon Graphics, Inc. Netscape is a registered trademark of Netscape Communications Corporation in the United States and other countries. HDS and HiCommand are registered trademarks of Hitachi Data Systems. HP-UX is a registered trademark of Hewlett-Packard Company.

UNIX is a registered trademark in the U.S. and in other countries, exclusively licensed through X/Open Company, Ltd.

Other product and company names mentioned herein may be the trademarks of their respective owners.

## **Storage Essentials 5.0 Application Guide**

---

# Contents

|   |       |     |
|---|-------|-----|
| <b>About this guide</b>                           | ..... | v   |
| Intended audience                                 | ..... | v   |
| Prerequisites                                     | ..... | v   |
| Related documentation                             | ..... | v   |
| Document conventions and symbols                  | ..... | vi  |
| HP technical support                              | ..... | vii |
| HP-authorized reseller                            | ..... | vii |
| Helpful web sites                                 | ..... | vii |
| <b>1 Overview</b>                                 | ..... | 1   |
| Overview of the Topics                            | ..... | 1   |
| <b>2 Accessing Information About Applications</b> | ..... | 3   |
| About Application Viewer                          | ..... | 3   |
| Obtaining a Summary of the Applications           | ..... | 3   |
| Navigation Information for Applications           | ..... | 4   |
| Events for Applications                           | ..... | 5   |
| Accessing the Events Page                         | ..... | 6   |
| Viewing Performance Information                   | ..... | 7   |
| About Chargeback for Applications                 | ..... | 7   |
| <b>3 Monitoring Oracle</b>                        | ..... | 9   |
| Monitoring Oracle Overview                        | ..... | 9   |
| Changing the Oracle TNS Listener Port             | ..... | 10  |
| Viewing Events for an Oracle Instance             | ..... | 10  |
| Viewing Properties                                | ..... | 11  |
| Assigning a Custom Name                           | ..... | 11  |
| Properties of an Oracle Instance                  | ..... | 12  |
| Properties of a Database Instance                 | ..... | 13  |
| Properties of a Database Control File Group       | ..... | 13  |
| Properties of a Database Control File             | ..... | 14  |
| Properties of a Database Redo Group               | ..... | 15  |
| Properties of a Database Redo File                | ..... | 15  |
| Properties of a Tablespace                        | ..... | 16  |
| Properties of a Tablespace File                   | ..... | 16  |
| Viewing Topology for Oracle                       | ..... | 17  |
| About the Topology Tab                            | ..... | 17  |
| Accessing the Topology Tab                        | ..... | 20  |
| Viewing Elements in the Oracle Instance's Path    | ..... | 21  |
| <b>4 Monitoring Microsoft Exchange</b>            | ..... | 23  |
| Monitoring Microsoft Exchange Overview            | ..... | 23  |

|   |           |
|---|-----------|
| Adding Microsoft Exchange Domain Controller Access . . . . .  | 24        |
| Viewing Events for a Microsoft Exchange Instance . . . . .    | 24        |
| Viewing Properties . . . . .                                  | 25        |
| Assigning a Custom Name . . . . .                             | 25        |
| Properties of a Microsoft Exchange Host . . . . .             | 26        |
| Properties of a Storage Group . . . . .                       | 26        |
| Properties of a Store . . . . .                               | 27        |
| Viewing Topology for Microsoft Exchange . . . . .             | 28        |
| About the Topology Tab for Microsoft Exchange . . . . .       | 28        |
| Accessing the Topology Tab . . . . .                          | 33        |
| Viewing Elements in the Host's Path . . . . .                 | 34        |
| Viewing Elements in the Microsoft Exchange Path . . . . .     | 34        |
| <b>5 Monitoring Microsoft SQL Server. . . . .</b>             | <b>35</b> |
| Monitoring Microsoft SQL Server Overview . . . . .            | 35        |
| Properties of a Microsoft SQL Server Database File . . . . .  | 35        |
| Viewing Events for SQL Server . . . . .                       | 36        |
| Viewing Properties . . . . .                                  | 37        |
| Properties of a SQL Server Instance . . . . .                 | 37        |
| Properties of a SQL Server Database . . . . .                 | 38        |
| Properties of a SQL Server Database File . . . . .            | 38        |
| Viewing Topology for a SQL Server . . . . .                   | 38        |
| Accessing the Topology Tab . . . . .                          | 38        |
| About the Topology Tab . . . . .                              | 39        |
| <b>6 Monitoring Sybase . . . . .</b>                          | <b>43</b> |
| Monitoring Sybase Overview . . . . .                          | 43        |
| Properties of a Sybase Database File . . . . .                | 44        |
| Viewing Topology for Sybase . . . . .                         | 45        |
| About the Topology Tab . . . . .                              | 45        |
| Accessing the Topology Tab . . . . .                          | 48        |
| Viewing Events for Sybase . . . . .                           | 49        |
| Viewing Properties . . . . .                                  | 49        |
| Properties of a Sybase Instance . . . . .                     | 49        |
| Properties of a Sybase Database . . . . .                     | 50        |
| Properties of a Sybase Database File . . . . .                | 51        |
| Viewing Topology for Sybase . . . . .                         | 51        |
| About the Topology Tab . . . . .                              | 52        |
| Accessing the Topology Tab . . . . .                          | 55        |
| <b>Index . . . . .</b>  | <b>57</b> |
| <b>Figures</b>  |           |
| 1 Viewing Information About an Event . . . . .                | 6         |
| 2 Topology of Oracle Database without Mount points . . . . .  | 18        |
| 3 Selecting Mount Points . . . . .                            | 19        |
| 4 Selecting Mount Points from Combo Box . . . . .             | 19        |
| 5 Topology for an Oracle Instance with Mount Points . . . . . | 20        |

|    |   |    |
|----|---|----|
| 6  | Topology of Microsoft Exchange without Mount Points . . . . .         | 29 |
| 7  | Selecting Mount Points . . . . .                                      | 30 |
| 8  | Selecting Mount Points from Combo Box. . . . .                        | 30 |
| 9  | Topology of Microsoft Exchange with Mount Points<br>(Figure 1 of 3)31 |    |
| 10 | Topology of Microsoft Exchange with Mount Points<br>(Figure 2 of 3)32 |    |
| 11 | Topology of Microsoft Exchange with Mount Points<br>(Figure 3 of 3)33 |    |
| 12 | SQL Server without Mount Points . . . . .                             | 40 |
| 13 | Selecting Mount Points . . . . .                                      | 41 |
| 14 | Selecting a Mount Point from the Select Menu . . . . .                | 41 |
| 15 | Topology of SQL Server Database with Two Mount Points. . . . .        | 42 |
| 16 | Topology of Sybase Database without Mount Points. . . . .             | 46 |
| 17 | Selecting Mount Points . . . . .                                      | 47 |
| 18 | Selecting Mount Points from Combo Box. . . . .                        | 47 |
| 19 | Topology of Sybase Database with Mount Points. . . . .                | 48 |
| 20 | Topology of Sybase Database without Mount Points. . . . .             | 53 |
| 21 | Selecting Mount Points . . . . .                                      | 54 |
| 22 | Selecting Mount Points from Combo Box. . . . .                        | 54 |
| 23 | Topology of Sybase Database with Mount Points. . . . .                | 55 |

## Tables

|   |  |    |
|---|--|----|
| 1 | Document conventions . . . . .             | vi |
| 2 | Topics Covered in This Book . . . . .      | 1  |
| 3 | About the Icons in Event Manager . . . . . | 5  |



# About this guide

This guide provides information about:

- Monitoring and managing Microsoft Exchange
- Monitoring and managing Oracle
- Monitoring and managing Sybase

## Intended audience

This guide is intended for:

- Network Engineers
- Administrators
- Any one that needs to monitor and/or manage their applications

## Prerequisites

Prerequisites for using this product include:

- Networking
- Storage Area Networks (SANs)
- The Common Information Model (CIM)

## Related documentation

In addition to this guide, please refer to other documents for this product:

- Online help for HP Storage Essentials 5.0
- HP Storage Essentials 5.0 Integration Guide
- HP Storage Essentials 5.0 User Guide
- HP Storage Essentials 5.0 CLI Guide
- HP Storage Essentials 5.0 for File Servers Guide
- HP Storage Essentials 5.0 Installation Guide

These and other HP documents can be found on the HP web site: <http://www.hp.com/support/>

# Document conventions and symbols

**Table 1** Document conventions

| Convention  | Element  |
|---|--|
| Medium blue text: <a href="#">Figure 1</a>  | Cross-reference links and e-mail addresses   |
| Medium blue, underlined text<br>( <a href="http://www.hp.com">http://www.hp.com</a> ) | Web site addresses   |
| <b>Bold font</b>  | <ul style="list-style-type: none"><li>Key names</li><li>Text typed into a GUI element, such as into a box</li><li>GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes</li></ul> |
| <i>Italics font</i>   | Text emphasis  |
| Monospace font  | <ul style="list-style-type: none"><li>File and directory names</li><li>System output</li><li>Code</li><li>Text typed at the command-line</li></ul>   |
| <i>Monospace, italic font</i>   | <ul style="list-style-type: none"><li>Code variables</li><li>Command-line variables</li></ul>  |
| <b>Monospace, bold font</b>   | Emphasis of file and directory names, system output, code, and text typed at the command line  |

---

 **WARNING!** Indicates that failure to follow directions could result in bodily harm or death.

---

---

 **CAUTION:** Indicates that failure to follow directions could result in damage to equipment or data.

---

---

 **IMPORTANT:** Provides clarifying information or specific instructions.

---

---

 **NOTE:** Provides additional information.

---

---

 **TIP:** Provides helpful hints and shortcuts.

---

## HP technical support

Telephone numbers for worldwide technical support are listed on the HP support web site:  
<http://www.hp.com/support/>.

Collect the following information before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

For continuous quality improvement, calls may be recorded or monitored.

HP strongly recommends that customers sign up online using the Subscriber's choice web site at  
<http://www.hp.com/go/e-updates>.

- Subscribing to this service provides you with e-mail updates on the latest product enhancements, newest versions of drivers, and firmware documentation updates as well as instant access to numerous other product resources.
- After signing up, you can quickly locate your products by selecting **Business support** and then **Storage** under Product Category.

## HP-authorized reseller

For the name of your nearest HP-authorized reseller:

- In the United States, call 1-800-345-1518.
- Elsewhere, visit the HP web site: <http://www.hp.com>. Then click **Contact HP** to find locations and telephone numbers.

## Helpful web sites

For third-party product information, see the following HP web sites:

- <http://www.hp.com>
- <http://www.hp.com/go/storage>
- <http://www.hp.com/support/>



# 1 Overview

The management server lets you obtain the latest information about your applications, such as Microsoft Exchange and Oracle. To determine which applications the management server supports, refer to the support matrix, which is accessible from the Documentation Center. The following features help you to quickly obtain data about these applications so you can quickly react to changes in your networking environment.

- **Application Viewer** - Lets you quickly obtain information about the applications in your network. It provides a quick snapshot of the number of applications the management server is monitoring and their events.
- **\*Reporting** - Lets you obtain reports about an application. You can schedule these reports to be e-mailed to others on a regular basis.
- **\*System Manager** - Provides a graphical representation of the applications the management server is monitoring.
- **\*Properties Tab** - Provides detailed property information about your application. This tab can be accessed by various methods.
- **\*Topology Tab** - Lets you view the components of your application.
- **\*Capacity Manager** - Lets you determine how much it costs to run an application. Refer to the User Guide for more information about using Chargeback Manager.
- **\*Policy Manager** - Lets you create policies that notify you when a certain amount of free space goes below a threshold and/or the percentage used goes above a threshold. Refer to the User Guide for more information about Policy Manager.

\*Refer to the User Guide for more information about these topics.

## Overview of the Topics

This guide assumes you have a basic understanding of the features described in the User Guide. This book focuses primarily on using the features specifically for applications. The following information is presented in this book.

**Table 2** Topics Covered in This Book

| Chapter  | Contents   |
|--|--|
| Chapter 2 - Accessing Information about Applications | <ul style="list-style-type: none"><li>• About Application Viewer</li><li>• Obtaining a Summary of the Applications</li><li>• Navigation Information for Applications</li><li>• Events for Applications</li><li>• About Chargeback for Applications</li></ul> |

**Table 2** Topics Covered in This Book (continued)

| Chapter                                     | Contents  |
|---|---|
| Chapter 3 - Monitoring Microsoft Exchange   | <ul style="list-style-type: none"><li>• Monitoring Microsoft Exchange Overview</li><li>• Monitoring a Microsoft Exchange Instance</li><li>• Adding/Modifying Microsoft Exchange Domain Controller</li><li>• Viewing Events for a Microsoft Exchange Instance</li><li>• Viewing Properties</li><li>• Viewing Topology for Microsoft Exchange</li></ul> |
| Chapter 4 - Monitoring Oracle               | <ul style="list-style-type: none"><li>• Monitoring Oracle Overview</li><li>• Monitoring the Oracle Instance</li><li>• Viewing Events for an Oracle Instance</li><li>• Viewing Properties</li><li>• Viewing Topology for Oracle</li></ul>  |
| Chapter 5 - Monitoring Microsoft SQL Server | <ul style="list-style-type: none"><li>• Monitoring Microsoft SQL Server</li><li>• Monitoring the Microsoft SQL Server Instance</li><li>• Viewing Events for a Microsoft SQL Server</li><li>• Viewing Properties</li><li>• Viewing Topology for Microsoft SQL Server</li></ul>   |
| Chapter 6 - Monitoring Sybase               | <ul style="list-style-type: none"><li>• Monitoring Sybase Overview</li><li>• Monitoring the Sybase Instance</li><li>• Viewing Events for a Sybase Instance</li><li>• Viewing Properties</li><li>• Viewing Topology for Sybase</li></ul>   |

## 2 Accessing Information About Applications

This chapter describes the following:

- ["About Application Viewer" on page 3](#)
- ["Obtaining a Summary of the Applications" on page 3](#)
- ["Navigation Information for Applications" on page 4](#)
- ["Events for Applications" on page 5](#)
- ["Viewing Performance Information" on page 7](#)
- ["About Chargeback for Applications" on page 7](#)

### About Application Viewer

**IMPORTANT:** Depending on your license, Application Viewer may not be available. See the "List of Features" to determine if you have access to Application Viewer. The "List of Features" is accessible from the Documentation Center ([Help > Documentation Center](#) in Storage Essentials).

Application Viewer lists the applications and their instances running in the storage area network (SAN) and any events associated with them. Application Viewer also provides the following information for applications:

- **Microsoft Exchange** - Data pertaining to navigation, properties, topology, chargeback, reports, monitoring and policies.
- **Oracle** - Data pertaining to navigation, properties, topology, chargeback, reports, monitoring and policies.
- **Microsoft SQL Server** - Data pertaining to navigation, properties, topology, chargeback, reports, monitoring and policies.
- **Sybase** - Data pertaining to navigation, properties, topology, chargeback, reports, monitoring and policies.
- **Virtual Applications** - Data pertaining to navigation, properties, topology, chargeback, reports, and monitoring.
- **File Servers** - Data pertaining to properties, volumes, extensions, aging, users, groups, events, reports, policies. Refer to the File SRM Guide for more information.
- **File Server Details** - Provides information about the file systems detected, such as total users, total users space, and total groups.

Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.

### Obtaining a Summary of the Applications

The Application Summary page is accessible by clicking the **Application Viewer** node in the tree. It provides a snapshot of all the applications the management server detects.

- A pie chart with the number of:

- Oracle Instances
- Microsoft Exchange Instances
- Microsoft SQL Server Instances
- Sybase Instances
- File Servers
- Virtual Applications
- A table to the right of the pie chart displaying the number of:
  - Oracle Instances
  - Microsoft Exchange Instances
  - Microsoft SQL Server Instances
  - Sybase Instances
  - File Servers
  - Virtual Applications
  - Total Applications

## Navigation Information for Applications

The Navigation tab provides information about an element and how it relates to other elements in its path. It is accessible by clicking the host name under the following nodes:

- **Oracle:** Tools > Storage Essentials > Application Viewer > Oracle
- **Microsoft Exchange:** Tools > Storage Essentials > Application Viewer > Microsoft Exchange
- **Microsoft SQL Server:** Tools > Storage Essentials > Application Viewer > SQLServer.
- **Sybase:** Tools > Storage Essentials > Application Viewer > Sybase.

To learn more about another element in the path, click the element on the **Navigation** tab. For an explanation of the fields for each element, see its corresponding online help.

For example if you want to learn more about the storage volumes on the host, click the Storage Volumes box on this page. A table appears with the storage volumes listed.

You can access additional functionality by clicking the following tabs at the top of the page.

- **Properties** - The Properties tab provides a detailed status of the element.
- **Events** - The Events tab displays the events pertaining to the element specified.
- **Topology** - The Topology tab provides a graphical representation of an element's path. It displays additional information not found in System Manager, such as adapters, slots, and fibre channel ports.
- **Chargeback** - The Asset Management tab lets you keep track of asset attributes, such as contact information for the element's owner.
- **Collectors** - The Collectors tab lets you start a collector for a report and view the collector's corresponding reports once the information has been gathered.
- **Policies** - The Policies tab lets you create utilization policies, which can send an e-mail, generate an event, or run a custom script when a set threshold for an element is triggered.

All of the tabs may not be visible in one of the following instances:

- The management server has discovered the application but it cannot obtain additional information about the application.
- The application is a virtual application, which is a placeholder in the topology for applications the management server cannot monitor.
- The element was created when you created a record.

## Events for Applications

The Events page view displays the following information about events associated with the application and its dependent elements:

- **ID** - The identifier assigned to the event
- **Element** - It is the source of the event. An element can be a switch, host, application, fabric or anything else on the network. If this field is blank, the event did not come from an element.
- **Severity** - Provides the severity level.
- **Time** - The time the event was recorded.
- **Summary Text** - A brief explanation of the event. To learn more about an event, click the link for the summary text.
- **Rank** - The cost implication.

The following table provides an overview of the severity levels.

**Table 3** About the Icons in Event Manager

| Icon | Description                             |
|------|---|
| ○    | Event was marked cleared.               |
| ?    | The severity of the event is not known. |
| ⓘ    | The event is informational.             |
| ⚠    | The event might have some impact.       |
| ⚠    | The event has a minor impact.           |
| ⚠    | The event has a major impact.           |
| ✖    | The event has a critical impact.        |

To view more information about an event, click the link in its summary text.

| ID   | Element                      | Severity  | Time                | Summary Text   | Rank |
|------|------------------------------|---|---------------------|--|------|
| 1581 | <a href="#">EXCHANGEDEV4</a> |   | 05/22/2003<br>07:25 | Discovered Host: <a href="#">EXCHANGEDEV4</a> at 192.168.1.206  | 0    |

**Figure 1** Viewing Information About an Event

- The Event Details pane provides information on one or more of the following:
- **Serial Number** - The number assigned to the event
- **Summary Text** - A brief explanation of the event
- **Element** - It is the source of the event. An element can be a switch, host, application, fabric or anything else on the network. If this field is blank, the event did not come from an element.
- **Source** - If the event came from an element, the name of the element is provided.
- **Time Reported** - The time the event was reported to the management server.
- **Probable Cause** - Provides an explanation of a probable cause.
- **Recommended Actions** - Provides recommendations.
- **Event Type** - Provides a description of the event.
- **Correlated Indications** - Information obtained from the provider.
- **Severity** - Provides the severity level, which can be one of the following:
  - **Clear**
  - **Unknown**
  - **Informational**
  - **Warning**
  - **Minor**
  - **Major**
  - **Critical**
- **Journal Entries** - Use this field to enter additional information and then click Add Journal Entry. This field is limited to 4,000 characters.

---

**NOTE:** Events listed in Event Manager may not be attributed to the correct source until Getting Details has completed.

---

## Accessing the Events Page

To access the Events page for an application, click the **Events** node in the Application Viewer tree. Traverse the following path: **Tools > Storage Essentials > Application Viewer > [application\_name] > Instance Name**, where **[application\_name]** is the name of the application, for example Oracle. Then, click the **Events** node.

## Viewing Performance Information

You can easily access performance information about an element, such as an application by accessing Performance Manager. Performance Manager provides detailed graphs to help you with monitoring your application. See the User Guide or online help for more information about Performance Manager.

## About Chargeback for Applications

Chargeback helps you manage departmental ownership, track cost and assemble business reports making inquiries, such as audits and inventory reviews, easier.

The management server provides the following types of chargeback.

- **Asset-based** - Asset-based chargeback calculates chargeback based on the departmental ownership percentages and the depreciated value of the assets. Each piece of equipment is owned by a department or a set of departments. Each department has a percentage ownership of the equipment.
- **Storage-based** - Storage-based chargeback calculates charges based on the actual amount of storage used by an application, the type of storage it is using and the ownership percentage assigned to each department. The chargeback number is further refined by an additional fixed infrastructure tax on a per department basis.

To learn more about Chargeback, refer to the User Guide.



## 3 Monitoring Oracle

**IMPORTANT:** Depending on your license, monitoring Oracle instances may not be available. See the "List of Features" to determine if you have access to monitoring Oracle instances. The "List of Features" is accessible from the Documentation Center (**Help > Documentation Center** in Storage Essentials).

This chapter describes the following:

- ["Monitoring Oracle Overview" on page 9](#)
- ["Changing the Oracle TNS Listener Port" on page 10](#)
- ["Viewing Events for an Oracle Instance" on page 10](#)
- ["Viewing Properties" on page 11](#)
- ["Viewing Topology for Oracle" on page 18](#)

### Monitoring Oracle Overview

Before you can monitor the Oracle Database, you must:

- Have the license for monitoring Oracle. To determine if your license supports the monitoring of Oracle, see the "List of Features" The List of Features is accessible from the Documentation Center (**Help > Documentation Center** in Storage Essentials).
- Create the APPIQ\_USER Account for Oracle.\*
- Change the TNS listener port (if necessary)\*
- Discover the application.\*

\*Refer to the *Installation Guide* for more information.

The management software for Oracle is a CIM-based application storage management solution that lets you realize the benefits of networked storage by more effectively managing your end-to-end Oracle infrastructure from a single, easy-to-use console. By integrating real time information from storage devices, network components, servers and operating systems with the application database, the management software for Oracle can improve your Oracle database performance, availability and reliability, and maximize your return on Oracle storage assets.

To help simplify the management of your Oracle storage, the management software for Oracle provides comprehensive topology visualization from the Oracle tablespace to the mount point to SAN switches to storage systems. This enables your storage and application administrators to immediately visualize the interdependency of the infrastructure to the application. You will no longer need to cross reference multiple spreadsheets and call multiple people to get an end-to-end picture.

During periods of infrastructure downtime or other times of equipment failures, infrastructure interdependencies are at your fingertips so you can make the correct split second decisions when you are having issues with the infrastructure.

The management software for Oracle provides deep visibility into each component that makes up the Oracle application including Oracle configuration, host configuration, switch configuration, and storage system configuration. This detailed information is provided at every level.

The management software for Oracle is built on CIM, Web-Based Enterprise Management (WBEM), and the Storage Management Initiative (SMI) industry standards for heterogeneous storage network management. The implementation of these standards allows the management software for Oracle to support all your heterogeneous storage needs and ensures your investments in infrastructure can be leveraged in the future.

### **Key Benefits**

- Improved Oracle database performance
- Increased Oracle database availability and reliability
- Maximized return on Oracle storage assets

### **Key Features**

- Database to disk topology view
- Standards-based (CIM/WBEM/SMI-S) management platform
- Database to disk monitoring
- Real time monitoring of Oracle storage
- Web-based global management console
- Ease of install, deployment and manageability

## **Changing the Oracle TNS Listener Port**

The software uses port 1521 by default to communicate with the TNS Listener service on the Oracle server. If your port is different or you use multiple ports, you can assign a new port number.

---

**IMPORTANT:** The hosts should recognize the management server by name, as a reverse look-up is required by operating system security as well as the Oracle Transparent Name Substrate (TNS).

---

To change this port number or to add ports:

1. Select **Options > Protocol Settings > Storage Essentials > Global Application Discovery Settings**.
2. To assign a new port, click the **Create** for the **Oracle Information** table.
3. Type the new port number and click **OK**.
4. If necessary, click the  button to remove the old port number.
5. Verify all elements have been discovered by clicking the **Start Discovery** button.

## **Viewing Events for an Oracle Instance**

You can view events pertaining to an Oracle instance and its dependent elements, such as switches and storage systems by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Expand the node for the Oracle instance from which you want to obtain event information.
3. Click **Path Events**.

The management server provides the following information about the events:

- **ID** - The identification number assigned to the event
- **Element** - The source of the event. An element can be a switch, host, application, fabric or anything else on the network.
- **Severity** - Provides the severity level
- **Time** - The time the event was recorded.
- **Summary Text** - A brief explanation of the event. When you click the summary text, the details of the event are displayed.
- **Element Type** - Specifies whether the source of this event is an application, a host, etc.
- **Rank** - The cost implication

Refer to the Chapter "Managing Events" in the User Guide for more information.

## Viewing Properties

This section provides information about the following:

- ["Assigning a Custom Name" on page 11](#)
- ["Properties of an Oracle Instance" on page 12](#)
- ["Properties of a Database Instance" on page 13](#)
- ["Properties of a Database Control File Group" on page 14](#)
- ["Properties of a Database Control File" on page 14](#)
- ["Properties of a Database Redo Group" on page 15](#)
- ["Properties of a Database Redo File" on page 15](#)
- ["Properties of a Tablespace" on page 16](#)
- ["Properties of a Tablespace File" on page 17](#)

## Assigning a Custom Name

To make it easier to identify an element instance in the system, assign the instance a Custom Name. The Custom Name also appears in Chargeback Manager.

---

**IMPORTANT:** Do not assign a custom name during "Get Topology" or "Discovery Data Collection." You can determine if the management server is getting the topology or all element details by looking at label near the status button.

---

**NOTE:** Since all users query the same database, this name is displayed to others using the software. As a result, you might want to make them aware of the name.

---

1. Access the **Custom Name** field by doing one of the following:
  - Double-clicking an Oracle instance in System Manager and then clicking the **Properties** tab.
  - Clicking an Oracle instance under the Oracle node in Application Viewer and then clicking the **Properties** tab.
2. In the **Custom Name** field, type a name.
3. In the **Custom Name** field, type a name.

Keep in mind the following:

- The name must contain 1 to 64 characters.
- The name must begin with a letter. Any character other than the first character can be a letter, a number (0 to 9), or one of the following symbols: dollar sign (\$), caret (^), hyphen (-), an underscore (\_) or a space.
- The name is case sensitive, for example, "Element1" and "element1" are different elements.

4. Click **Save**.

## Properties of an Oracle Instance

You can view detailed properties of an Oracle instance by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in **Application Viewer**.
3. Click the **Properties** tab.

The following properties are displayed:

- **Custom Name** - To make it easier to identify the element instance in the system, assign the instance a Custom Name. The Custom Name also appears in Chargeback. Since all users query the same database, this name is displayed to others using the software. As a result, you might want to make them aware of the name. For more information adding a Custom Name, refer to "Assigning a Custom Name" in the User Guide.
- **Business Cost** - The management server lets you assign a business cost to an application, including virtual applications. This information is used in Event Manager for ranking events from elements. Event Manager determines the rank of an event by taking into account the business cost of the application and the severity of the event. You can sort events by rank in Event Manager by clicking the Rank column. See the topic, "Assigning a Business Cost to an Application" for more information.
- **Vendor**

- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Target Operating System**
- **Identification Code**
- **Product Name**
- **Serial Number**
- **Build Number**
- **Version**
- **Host** - To learn more about the host, click its link.
- **Database Type**
- **Databases** - To learn more about a database, click its link.
- **Update Element Data** - To update the displayed properties, click the **Update Element Data** button at the bottom of the screen. The management server gathers new and changed details from the element and then redraws the topology with the updated information.

## Properties of a Database Instance

You can view detailed properties of a control group for an Oracle instance by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in Application Viewer.
3. Click the **Properties** tab.
4. Scroll to the bottom of the page and click the database you want to learn more about.

The following properties are displayed for the database:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Type** - The type of database
- **Database Logical Elements** - To learn more about a database logical element, click its link.

## Properties of a Database Control File Group

You can find the properties of a database control file for an Oracle instance by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in Application Viewer.
3. Click the **Properties** tab.
4. Scroll to the bottom of the page and click the database containing the control group you want to learn more about.
5. When you are shown the properties of the database, scroll to the bottom of the page to the Database Logical Elements table and click the database control file group you want to learn more about.

The following properties for the database control file group are displayed:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Type** - The type of file
- **Database Physical Elements** - To learn more about a control file, click its link.

## Properties of a Database Control File

You can find the properties of a database control file for an Oracle instance by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in Application Viewer.
3. Click the **Properties** tab.
4. Scroll to the bottom of the page and click the database containing the control group you want to learn more about.
5. When you are shown the properties of the database, scroll to the bottom of the page to the Database Logical Elements table and click the database control file group.
6. In the Database Physical Elements table, click the database control file you want to learn more about.

The following properties for the database control file are displayed:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**

- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Vx Volume**
- **Disk Partition**
- **Logical Drive**
- **File Path**
- **Status**
- **Data File Path**
- **Type**
- **Oracle Database Control File Group** - Displays the control file group containing the database control file. Click the control file group to learn more about it.

## Properties of a Database Redo Group

You can find the properties of a database redo group for an Oracle instance by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in Application Viewer.
3. Click the **Properties** tab.
4. Scroll to the bottom of the page and click the database containing the control group you want to learn more about.
5. When you are shown the properties of the database, scroll to the bottom of the page to the Database Logical Elements table and click the database redo group you want to learn more about.

The following properties for the database redo group are displayed:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Type** - The type of file
- **Database Physical Elements** - To learn more about a database redo file, click its link.

## Properties of a Database Redo File

You can find the properties of a database redo file for an Oracle instance by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in Application Viewer.
3. Click the **Properties** tab.
4. Scroll to the bottom of the page and click the database containing the control group you want to learn more about.
5. When you are shown the properties of the database, scroll to the bottom of the page to the Database Logical Elements table and click the database redo group containing the database redo file.
6. In the Database Physical Elements table, click the database redo file you want to learn more about.

The following properties for the redo file are displayed:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Vx Volume**
- **Disk Partition**
- **Logical Drive**
- **File Path**
- **Status**
- **Data File Path**
- **Type**
- **Oracle Database Redo Group** - To learn more about the database redo group containing the database redo file, click its link.

## Properties of a Tablespace

You can view detailed properties of a tablespace by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in Application Viewer.
3. Click the **Properties** tab.
4. Scroll to the bottom of the page and click the database containing the control group you want to learn more about.
5. When you are shown the properties of the database, scroll to the bottom of the page to the Database Logical Elements table and click the database tablespace you want to learn more about.

The following properties for the database tablespace are displayed:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Type** - The type of file
- **Database Physical Elements** - To learn more about a tablespace file, click its link.

## Properties of a Tablespace File

You can view detailed properties of a tablespace file by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in Application Viewer.
3. Click the **Properties** tab.
4. Scroll to the bottom of the page and click the database containing the control group you want to learn more about.
5. When you are shown the properties of the database, scroll to the bottom of the page to the Database Logical Elements table and click the database tablespace you want to learn more about.
6. In the Database Physical Elements table, click a tablespace file.

The following properties are displayed for the tablespace file:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Vx Volume**
- **Disk Partition**
- **Logical Drive**
- **File Path**
- **Status**
- **Data File Path**

- **Type**
- **Oracle Database Tablespace** - To learn more about the database tablespace containing the database tablespace file, click its link.

## Viewing Topology for Oracle

This section describes the following:

- ["About the Topology Tab" on page 18](#)
- ["Accessing the Topology Tab" on page 21](#)
- ["Viewing Elements in the Oracle Instance's Path" on page 22](#)

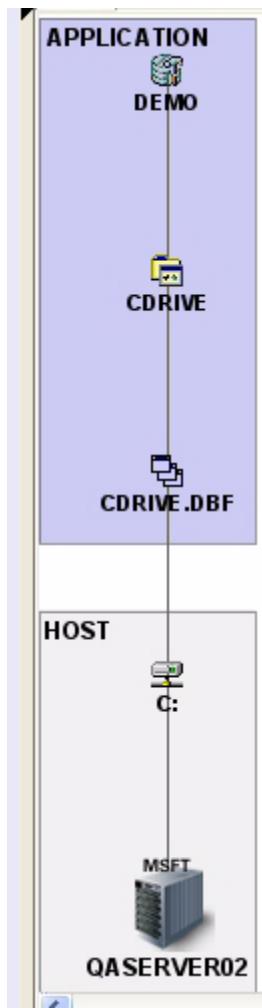
## About the Topology Tab

The Topology tab provides a graphical representation of your storage network.

- **Left pane** - Provides a path view of the Oracle database. When you select an element in the left pane, its location is shown in the right pane.
- **Right pane** - Provides a logical diagram of the storage network. From the Topology tab, you can determine the location of a device on the network. For example, you could use the Topology tab to find which tablespace uses a given data file.

From the Topology tab, you can obtain information about the host, Oracle instance, database instance, control files and redo files by double-clicking its icon in the topology.

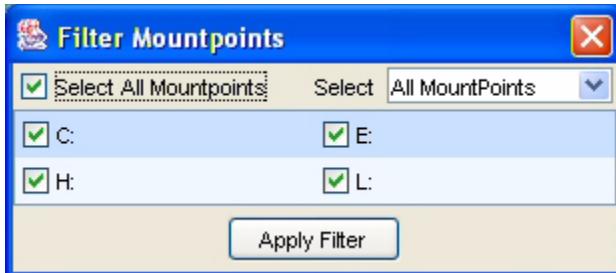
When you first access the Topology tab, you are first told that the mount points have been filtered. If you look at the following table, only one database file is displayed.



**Figure 2** Topology of Oracle Database without Mount points

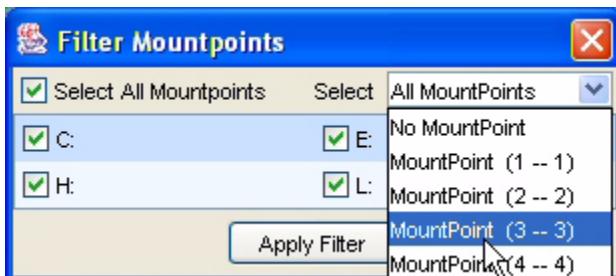
- If you want to view the mount points, click the **Filter** button (filter icon) in the upper-right corner of the screen. To view the **Filter** button, you need to close the left pane. See the topic, "Opening and Closing the Left Pane" for information on how to close the left pane.

- Select the mount points you want to view by selecting them by letter, as shown in the following figure.



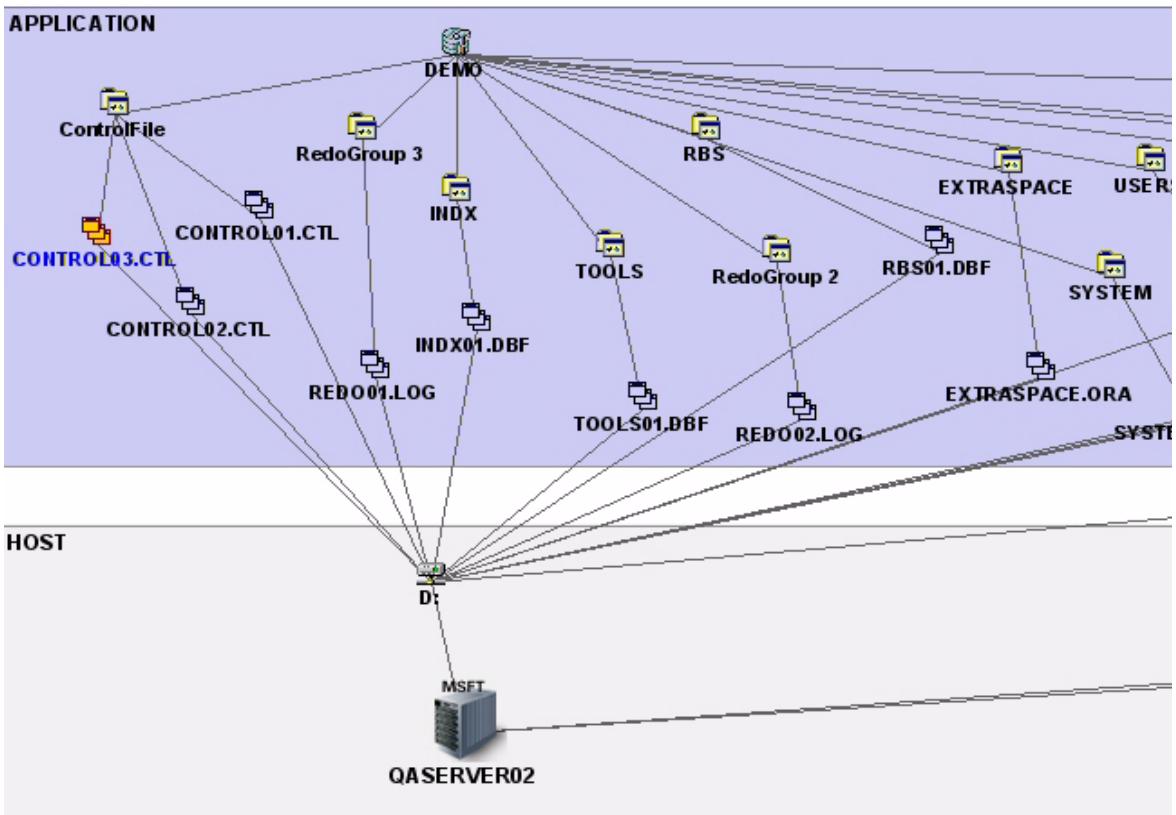
**Figure 3** Selecting Mount Points

- You can also select the mount points from the **Select** combo-box.



**Figure 4** Selecting Mount Points from Combo Box

- When you are done selecting mount points, click the **Apply Filter** button. In the following figure, all of the mount points were selected. Notice that all database control files are now displayed.



**Figure 5** Topology for an Oracle Instance with Mount Points

---

**NOTE:** The topology was arranged so that as many components as possible could be displayed in the figure; however, not all components could fit in the figure.

---

You can obtain property information about each component by double-clicking it.

## Accessing the Topology Tab

Access the Topology tab by doing one of the following:

- Clicking an Oracle instance under the Oracle node in Application Viewer and then clicking the **Topology** tab.
- Double-clicking an Oracle instance in System Manager and then clicking the Topology tab.

You can view property information for the item displayed in the topology by double-clicking its icon.

Refer to the topic, "About the Topology Tab" in the User Guide for more information.

## Viewing Elements in the Oracle Instance's Path

You can view elements in the Oracle instances path by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Oracle instance in Application Viewer.
3. Click the **Navigation** tab.
4. Do one or more of the following:
  - To learn more about the host, click the **Hosts** button.
  - To learn more about the switches connected to the host, click the **Switches** button.
  - To learn more about the storage systems associated with the host, click the **Storage Systems** button.

## 4 Monitoring Microsoft Exchange

**IMPORTANT:** Depending on your license, monitoring Microsoft Exchange instances may not be available. See the "List of Features" to determine if you have access to monitoring Microsoft Exchange instances. The "List of Features" is accessible from the Documentation Center (**Help > Documentation Center** in Storage Essentials).

This chapter describes the following:

- ["Monitoring Microsoft Exchange Overview" on page 23](#)
- ["Adding Microsoft Exchange Domain Controller Access" on page 24](#)
- ["Viewing Events for a Microsoft Exchange Instance" on page 25](#)
- ["Viewing Properties" on page 25](#)
- ["Viewing Topology for Microsoft Exchange" on page 28](#)

### Monitoring Microsoft Exchange Overview

Before you can monitor Microsoft Exchange Server, you must:

- Have the license for monitoring Microsoft Exchange. To determine if your license supports the monitoring of Microsoft Exchange, see the "List of Features" The List of Features is accessible from the Documentation Center (**Help > Documentation Center** in Storage Essentials).
- Provide to the management server the DNS name, user name and password for at least a primary domain controller.\*
- Discover hosts running Microsoft Exchange Servers.\*

\*See the Installation Guide for more information.

Management Software for Microsoft Exchange is a CIM-based application storage management solution that simplifies the management of your end-to-end Microsoft Exchange infrastructure. Using Microsoft supported interfaces, the Windows platform and other related services, the management software for Microsoft Exchange provides deep application comprehension that enables the design, provisioning, monitoring, managing and migration of enterprise-wide Microsoft® Exchange instances. This tight application integration lets Microsoft Exchange administrators improve availability, ensure predictable performance, and lower the overall cost of Microsoft Exchange storage management.

The management software for Microsoft Exchange is built on CIM, Web-Based Enterprise Management (WBEM), and the Storage Management Initiative (SMI) industry standards for heterogeneous storage network management. The implementation of these standards allows the management software for Microsoft Exchange to support all your heterogeneous storage needs and ensures your investments in infrastructure can be leveraged in the future.

#### Key Benefits

- Accelerates time to deployment of Microsoft Exchange

- Improves Microsoft Exchange availability
- Assists Microsoft Exchange administrators in preventing disaster
- Maximizes the return on Microsoft Exchange assets

### Key Features

- Performs end-to-end provisioning and configuration required to install Microsoft Exchange
- Real time monitoring of Microsoft Exchange storage
- Microsoft Exchange store to disk topology view
- Intelligent event management correlates events across the system
- Auto-discovers and manages all the storage infrastructure components required: servers, HBAs, switches and storage systems
- Standards-based (CIM/WBEM/SMI) management platform
- Web-based global management console
- Ease of install, deployment and manageability

## Adding Microsoft Exchange Domain Controller Access

To obtain information about your Microsoft Exchange servers, you must provide the user name and password for at least a primary domain controller, in addition to a DNS name, as described in the following steps.

---

**IMPORTANT:** The hosts should recognize the management server by name, as a reverse look-up is required by operating system security as well as Microsoft Exchange.

---

To provide information about the Microsoft Exchange servers:

1. Select **Options > Protocol Settings > Storage Essentials > Global Application Discovery Settings**.
2. In the Microsoft Exchange Configuration section, click the **Edit** button.
3. Under the Primary Domain Controller section, perform the following steps:
  - a. In the **Host Name** field, type the fully qualified DNS name for the domain controller.
  - b. In the **User Name** field, type the user name for accessing the Microsoft Exchange server.
  - c. In the **Domain Password** field, type the corresponding password for accessing the Microsoft Exchange server.
  - d. In the **Verify Password** field, re-type the password for verification.
4. Under the Backup Domain Controller section, perform the following steps:
  - a. In the **Host Name** field, type the fully qualified DNS name for the domain controller.
  - b. In the **User Name** field, type the user name for accessing the Microsoft Exchange server.
  - c. In the **Domain Password** field, type the corresponding password for accessing the domain controller.
  - d. In the **Verify Password** field, re-type the password for verification.
5. Click the **OK** button.

## Viewing Events for a Microsoft Exchange Instance

You can view events pertaining to a Microsoft Exchange instance and its dependent elements, such as switches and storage systems by doing the following:

1. Click **Tools > Storage Essentials > Application Viewer**.
2. Expand the node for the Microsoft Exchange instance from which you want to obtain event information.
3. Click **Path Events**.

The events for that Microsoft Exchange instances and its dependent elements are displayed in the right pane.

The management server provides the following information about the events:

- **ID** - The identification number assigned to the event
- **Element** - The source of the event. An element can be a switch, host, application, fabric or anything else on the network.
- **Severity** - Provides the severity level
- **Time** - The time the event was recorded.
- **Summary Text** - A brief explanation of the event. When you click the summary text, the details of the event are displayed.
- **Rank** - The cost implication

Refer to the Chapter "Managing Events" in the User Guide for more information.

## Viewing Properties

This section describes the following:

- ["Assigning a Custom Name" on page 25](#)
- ["Properties of a Microsoft Exchange Host" on page 26](#)
- ["Properties of a Storage Group" on page 27](#)
- ["Properties of a Store" on page 27](#)

## Assigning a Custom Name

To make it easier to identify an element instance in the system, assign the instance a Custom Name. The Custom Name also appears in Chargeback Manager.

---

**IMPORTANT:** Do not assign a custom name during "Get Topology" or "Discovery Data Collection." You can determine if the management server is getting the topology or all element details by looking at label near the status button.

---

**NOTE:** Since all users query the same database, this name is displayed to others using the software. As a result, you might want to make them aware of the name.

---

1. Access the **Custom Name** field by doing one of the following:
  - Double-clicking a Microsoft Exchange instance in System Manager and then clicking the **Properties** tab.
  - Clicking a Microsoft Exchange instance under the Microsoft Exchange node in Application Viewer and then clicking the **Properties** tab.
2. In the **Custom Name** field, type a name.  
Keep in mind the following:
  - The name must contain 1 to 64 characters.
  - The name must begin with a letter. Any character other than the first character can be a letter, a number (0 to 9), or one of the following symbols: dollar sign (\$), caret (^), hyphen (-), an underscore (\_) or a space.
  - The name is case sensitive, for example, "Element1" and "element1" are different elements.
3. Click **Save**.

## Properties of a Microsoft Exchange Host

You can view detailed properties of the host by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Access the Properties tab by doing one of the following:
  - Clicking the Microsoft Exchange instance under the Microsoft Exchange node in Application Viewer.
  - Double-clicking the application icon for the Microsoft Exchange instance in System Manager.
3. Click the **Properties** tab.

The following properties are displayed:

- **Custom Name** - To make it easier to identify the element instance in the system, assign the instance a Custom Name. The Custom Name also appears in Chargeback. Since all users query the same database, this name is displayed to others using the software. As a result, you might want to make them aware of the name. For more information about adding a Custom Name, refer to "Assigning a Custom Name" in the User Guide.
- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**

- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Target Operating System**
- **Identification Code**
- **Product Name**
- **Serial Number**
- **Build Number**
- **Version**
- **Host** - To learn more about the host, click its link.
- **Storage Volumes** - To obtain more information about a storage volume on the host, click the storage volume.

## Properties of a Storage Group

You can find the properties of a storage group for a Microsoft Exchange instance by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Access the Properties tab by doing one of the following:
  - Clicking the Microsoft Exchange instance under the Microsoft Exchange node in Application Viewer.
  - Double-clicking the application icon for the Microsoft Exchange instance in System Manager.
3. Click the **Properties** tab.
4. In the Storage Groups table, click the storage group you want to learn more about.

The following properties are displayed for the storage group:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Active Directory Name**
- **Application**
- **Stores** - To learn more about a store, click its link.

## Properties of a Store

You can find the properties of a Microsoft Exchange store by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Access the Properties tab by doing one of the following:
  - Clicking the Microsoft Exchange instance under the Microsoft Exchange node in Application Viewer.
  - Double-clicking the application icon for the Microsoft Exchange instance in System Manager.
3. Click the **Properties** tab.
4. In the Storage Groups table, click the storage group containing the store you want to learn more about.
5. In the Stores table, click the store you want to learn more about.

The following properties are displayed for the store:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Online** - True or false value.
- **Private Store** - True or false value.
- **Logical Drive**
- **Active Directory Name**
- **Storage Group** - The name of the storage group containing the store. Click the name of the storage group to learn more about it.
- **File Path**

## Viewing Topology for Microsoft Exchange

This section describes the following:

- ["About the Topology Tab for Microsoft Exchange" on page 28](#)
- ["Accessing the Topology Tab" on page 33](#)
- ["Viewing Elements in the Host's Path" on page 34](#)
- ["Viewing Elements in the Microsoft Exchange Path" on page 34](#)

## About the Topology Tab for Microsoft Exchange

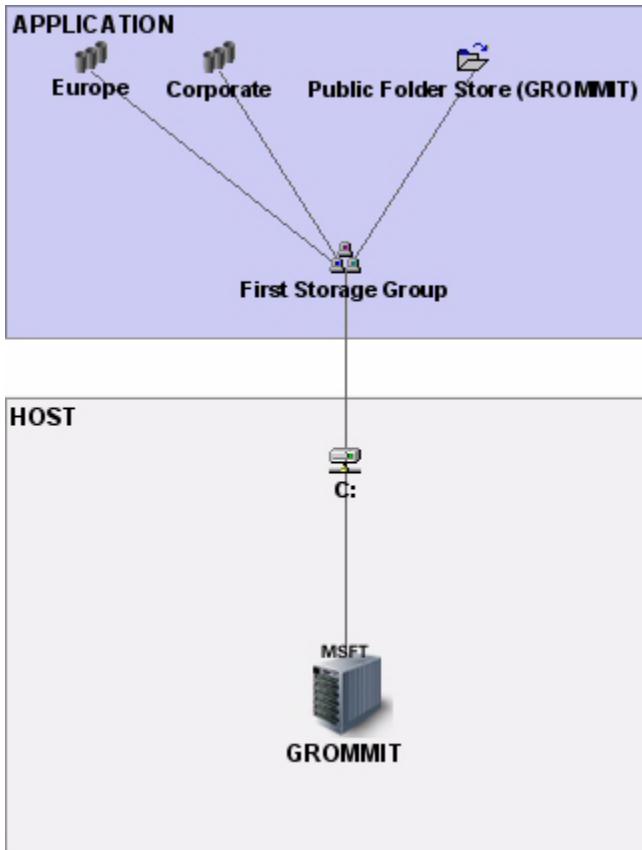
The Topology tab provides a graphical representation of your storage network.

- **Left pane** - Provides a path view of the Microsoft Exchange database. When you select an element in the left pane, its location is shown in the right pane.
- **Right pane** - Provides a logical diagram of the storage network. From the Topology tab, you can determine the location of a device on the network. For example, let's assume you want to

find out which storage group contains the mailbox store. You could use the Topology tab to obtain this information.

From the Topology tab, you can obtain information about the host, storage volume, a Microsoft Exchange storage group, or a Microsoft Exchange store by double-clicking its icon in the topology.

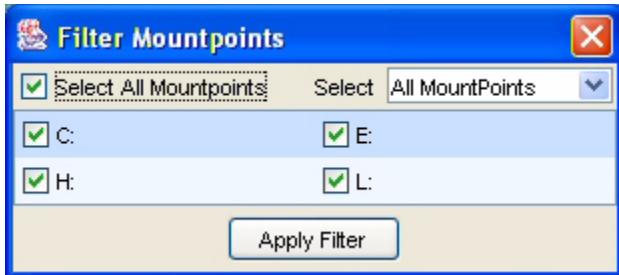
When you first access the Topology tab, you are first told that the mount points have been filtered. If you look at the following figure, only the first storage group is displayed.



**Figure 6** Topology of Microsoft Exchange without Mount Points

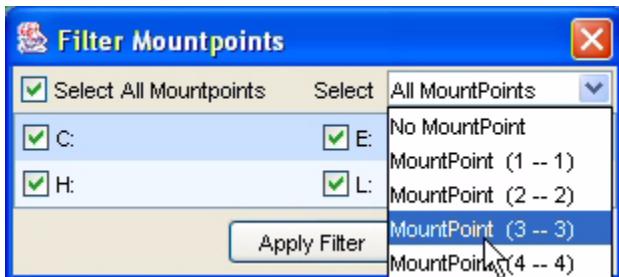
If you want to view the mount points, click the **Filter** button (Filter icon) in the upper-right corner of the screen. To view the **Filter** button, you need to close the left pane. See the topic, "Opening and Closing the Left Pane" for information on how to close the left pane.

Select the mount points you want to view by selecting them by letter, as shown in the following figure.



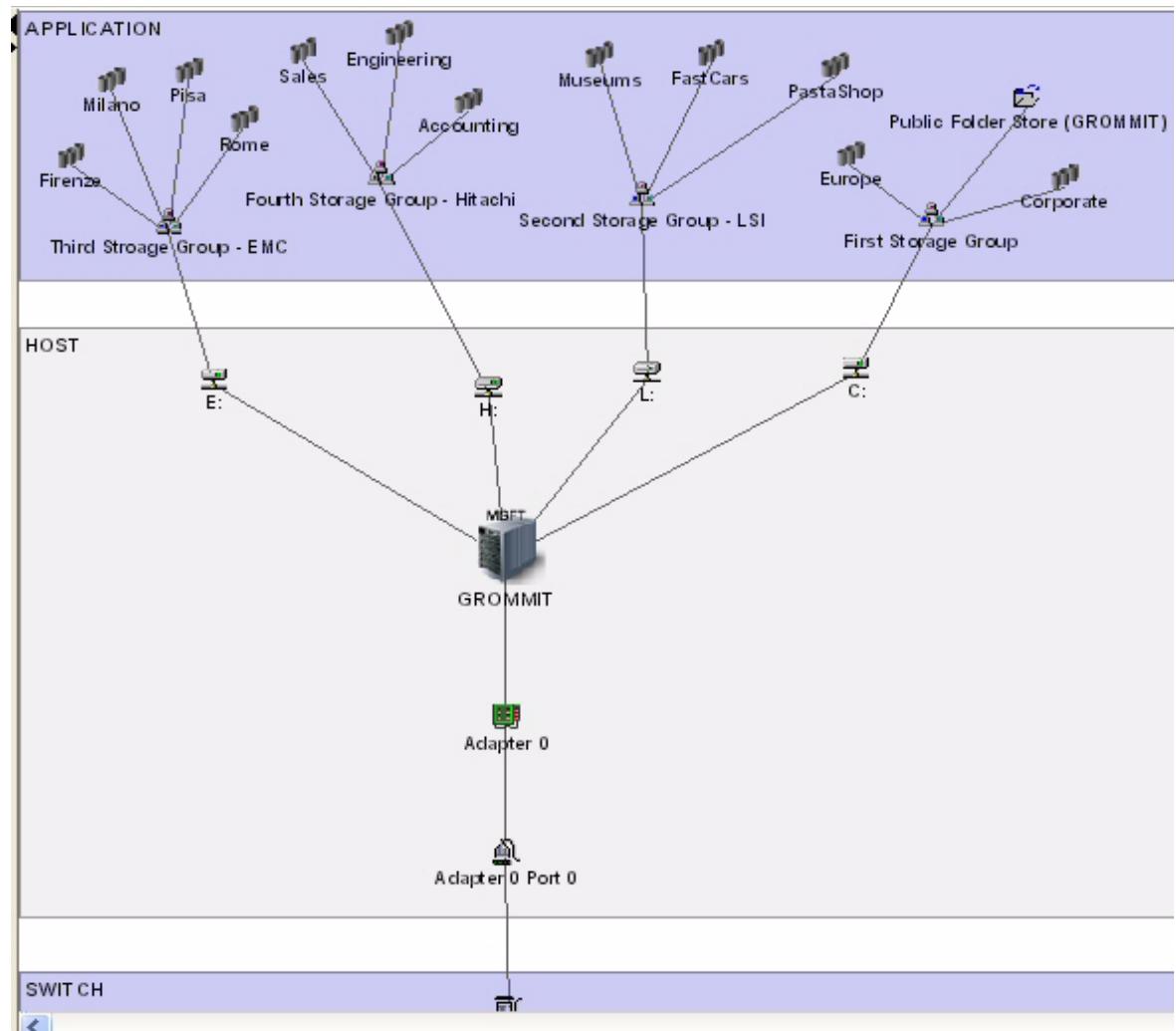
**Figure 7** Selecting Mount Points

You can also select the mount points from the **Select** combo-box.

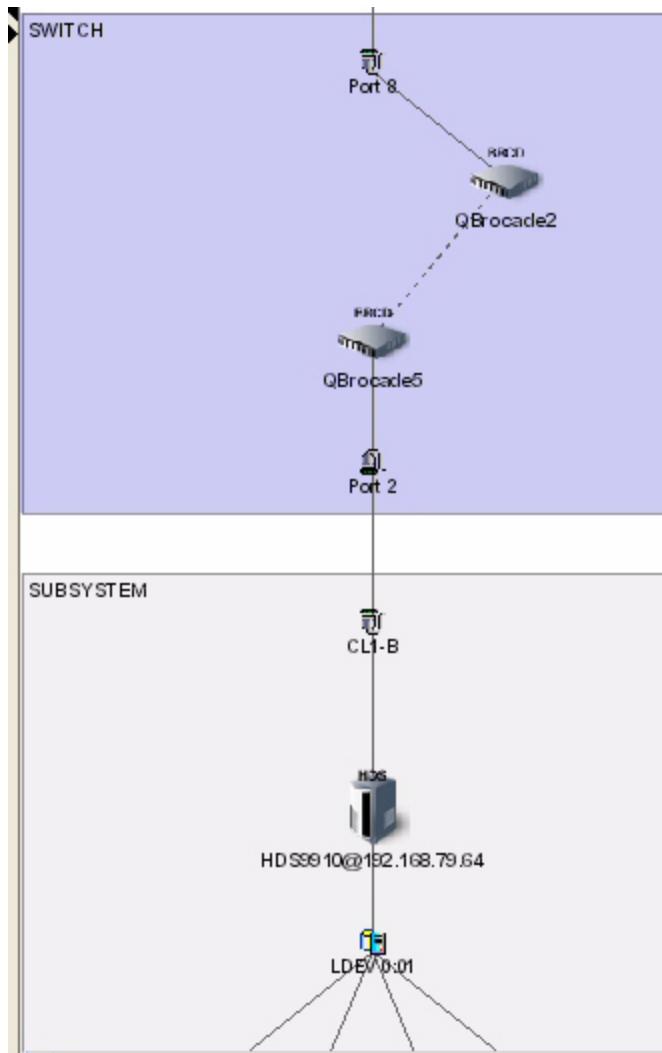


**Figure 8** Selecting Mount Points from Combo Box

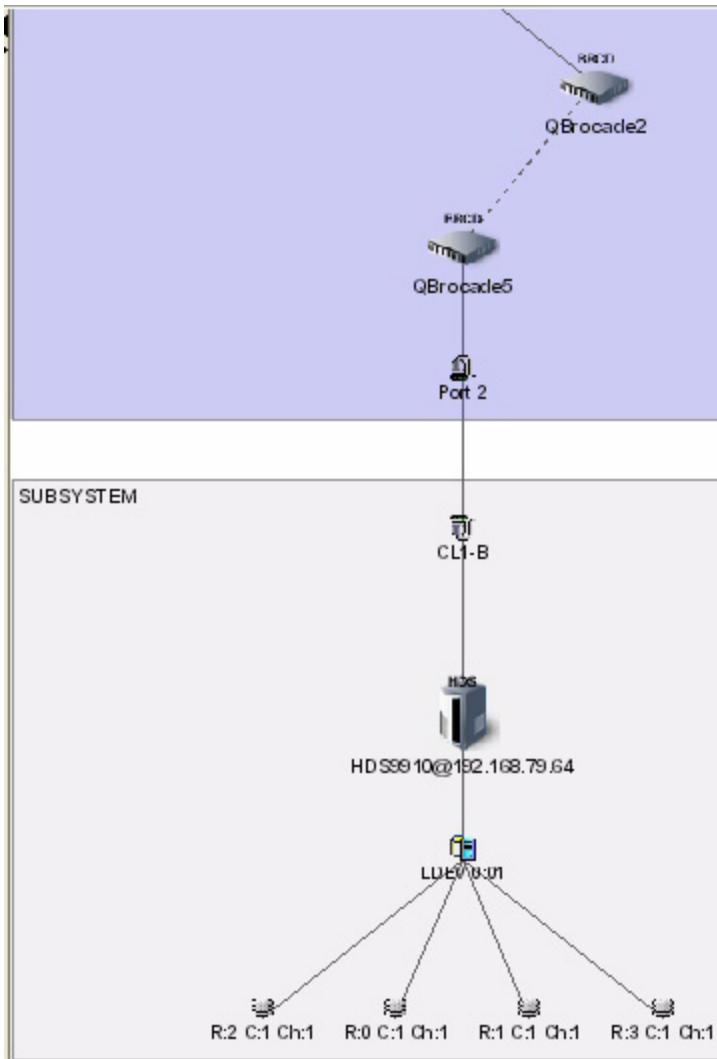
When you are done selecting mount points, click the **Apply Filter** button. In the following figure, all of the mount points were selected. Notice that all the storage groups are now displayed, as well as the connecting switch and storage system.



**Figure 9** Topology of Microsoft Exchange with Mount Points  
(Figure 1 of 3)



**Figure 10** Topology of Microsoft Exchange with Mount Points  
(Figure 2 of 3)



**Figure 11** Topology of Microsoft Exchange with Mount Points  
(Figure 3 of 3)

## Accessing the Topology Tab

Access the Topology tab by doing one of the following:

- Clicking a Microsoft Exchange instance under the Microsoft Exchange node in Application Viewer and clicking the **Topology** button.
- Double-clicking a Microsoft Exchange instance in System Manager and then clicking the **Topology** tab.

You can view property information for storage groups and stores by double-clicking their icons in the Topology tab.

Refer to the topic, "About the Topology Tab" in the User Guide for more information.

## Viewing Elements in the Host's Path

You can view elements in the host's path and the host's basic properties by doing the following:

1. Double-click the host in System Manager.
2. Click the **Navigation** tab.

Some or all of following properties are displayed, depending on the information obtained by the management software for Microsoft Exchange:

- **Description**
- **Model**
- **IP Address**
- **Operating System**
- **Total Physical Memory**
- **Number of Processors**
- **DNS Name**

To learn more about the elements in the path of the host, click the corresponding button.

## Viewing Elements in the Microsoft Exchange Path

You can view elements in Microsoft Exchange path by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Microsoft Exchange instance under the Microsoft Exchange node in Application Viewer.

The **Navigation** tab displays the elements in the Microsoft Exchange path. You can learn more about an element by clicking it. For example, to view information about dependent switches, click the **Switches** button for the host in the **Navigation** tab.

# 5 Monitoring Microsoft SQL Server

**IMPORTANT:** Depending on your license, monitoring Microsoft SQL Server instances may not be available. See the "List of Features" to determine if you have access to monitoring Sybase instances. The "List of Features" is accessible from the Documentation Center (**Help > Documentation Center** in Storage Essentials).

This chapter describes the following:

- ["Monitoring Microsoft SQL Server Overview" on page 35](#)
- ["Viewing Events for SQL Server" on page 36](#)
- ["Viewing Properties" on page 37](#)
- ["Viewing Topology for a SQL Server" on page 38](#)

## Monitoring Microsoft SQL Server Overview

Before you can monitor Microsoft SQL Server you must:

- Have the license for monitoring Microsoft SQL Server. To determine if your license supports the monitoring of Sybase, see the "List of Features" The List of Features is accessible from the Documentation Center (**Help > Documentation Center** in Storage Essentials).
- Provide the database server name and port number.\*
- Discover the application.\*

\*Refer to the *Installation Guide* for more information.

### Key Benefits

- Improved Microsoft SQL Server database performance
- Increased Microsoft SQL Server availability and reliability
- Maximized return on Microsoft SQL Server storage assets

### Key Features

- Database to disk topology view
- Standards-based (CIM/WBEM/SMI-S) management platform
- Database to disk monitoring
- Real time monitoring of Microsoft SQL Server storage
- Web-based global management console
- Ease of install, deployment and manageability

## Properties of a Microsoft SQL Server Database File

You can view the properties of a Sybase database file by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.

2. Click the SQL Server instance in Application Viewer.
3. Click the **Properties** tab.
4. In the Databases table, click a database.
5. In the Database Instance table, click the database instance you want to learn more about.

The following properties are displayed:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **DB Logical**
- **VxVolume**
- **Disk Partition**
- **Logical Drive**
- **File Path**
- **Status**
- **Data File Path**
- **Type**

## Viewing Events for SQL Server

You can view events pertaining to a SQL Server database and its dependent elements, such as storage systems by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Expand the node for the SQL Server database from which you want to obtain event information.
3. Click **Path Events**.

The events for that SQL Server database and its dependent elements are displayed in the right pane.

The management server provides the following information about the events:

- **ID** - The identification number assigned to the event
- **Element** - The source of the event. An element can be a switch, host, application, fabric or anything else on the network.
- **Severity** - Provides the severity level
- **Time** - The time the event was recorded.
- **Summary Text** - A brief explanation of the event. When you click the summary text, the details of the event are displayed.
- **Element Type** - Specifies whether the source of this event is an application, a host, etc.

- **Rank** - The cost implication

Refer to the Chapter "Managing Events" in the User Guide for more information.

## Viewing Properties

This section describes the following:

- "[Properties of a SQL Server Instance](#)" on page 37
- "[Properties of a SQL Server Database](#)" on page 38
- "[Properties of a SQL Server Database File](#)" on page 38

### Properties of a SQL Server Instance

You can view the properties of a SQL Server instance on a host by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the SQL Server instance in Application Viewer.
3. Click the **Properties** tab.

The following properties are displayed:

- **Custom Name** - To make it easier to identify the element instance in the system, assign the instance a Custom Name. The Custom Name also appears in Chargeback. Since all users query the same database, this name is displayed to others using the software. As a result, you might want to make them aware of the name.
- **Business Cost** - The management server lets you assign a business cost to an application, including virtual applications. This information is used in Event Manager for ranking events from elements. Event Manager determines the rank of an event by taking into account the business cost of the application and the severity of the event. You can sort events by rank in Event Manager by clicking the Rank column.
- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Target Operating System**
- **Identification Code**
- **Product Name**
- **Serial Number**
- **Build Number**
- **Version**
- **Host** - To learn more about the host, click its link.

- **Database Type**
- **Databases** - To learn more about a database, click its link in the Databases table.
- **Update Element Data** - To update the displayed properties, click the **Update Element Data** button at the bottom of the screen. The management server gathers new and changed details from the element and then redraws the topology with the updated information.

## Properties of a SQL Server Database

You can view the properties of a SQL Server database by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Sybase instance in Application Viewer.
3. Click the **Properties** tab.
4. In the Databases table, click a database you want to learn more about.

The following properties are displayed:

- **Name Detected**
- **Install Date**
- **Vendor**
- **Discovery Status**
- **Record Created**
- **Contacted**
- **OID**
- **Description**
- **Type**
- **SQLServer Instance** - To learn more about the instance, click its link.

## Properties of a SQL Server Database File

You can view the properties of a SQL Server database file by doing the following:

1. Access System Manager.
2. Double-click the SQL Server icon in System Manager.
3. Click the **Topology** tab.
4. Double-click the database file in the topology displayed.

## Viewing Topology for a SQL Server

This section describes the following:

- ["Accessing the Topology Tab" on page 38](#)
- ["About the Topology Tab" on page 39](#)

## Accessing the Topology Tab

Access the Topology tab by doing one of the following:

- Clicking a SQL Server instance under the SQLSERVER node in Application Viewer and clicking the **Topology** button.
- Double-clicking a SQL Server instance in System Manager and then clicking the **Topology** tab.

You can view property information for storage groups and stores by double-clicking their icons in the Topology tab.

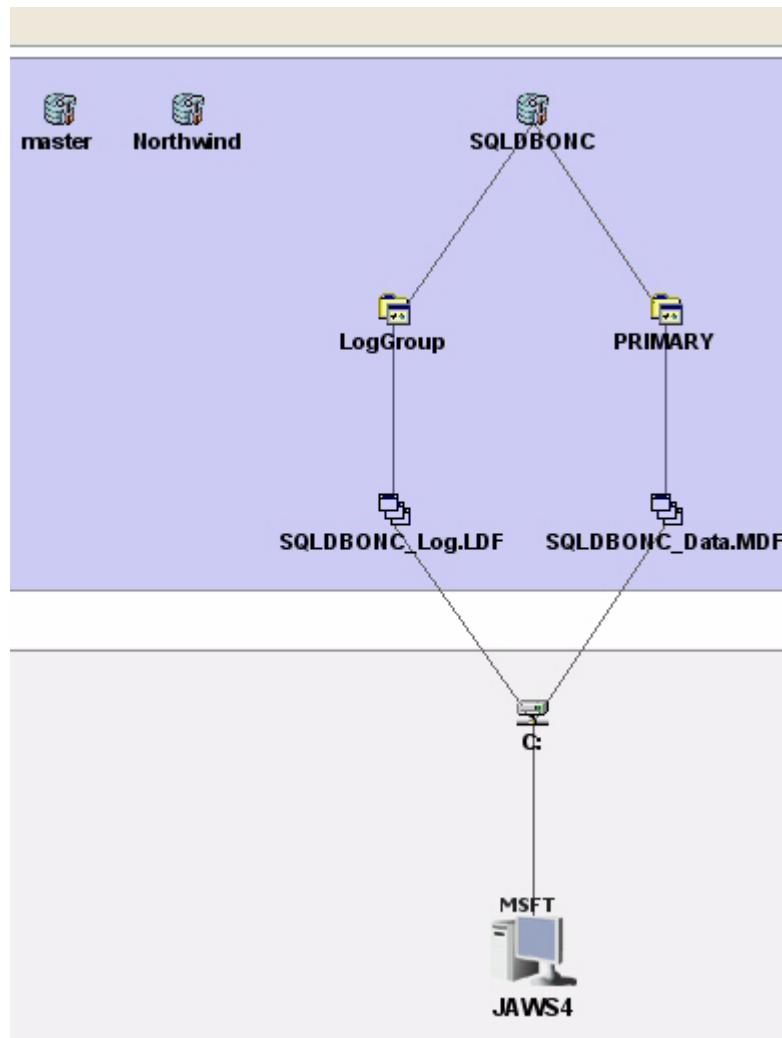
## About the Topology Tab

The Topology tab provides a graphical representation of your storage network.

- **Left pane** - Provides a path view of the SQL Server database. When you select an element in the left pane, its location is shown in the right pane.
- **Right pane** - Provides a logical diagram of the storage network. From the Topology tab, you can determine the location of a device on the network. For example, you could use the Topology tab to find which database file corresponds to a database.

From the Topology tab, you can obtain information about the items in the topology by double-clicking its icon in the topology.

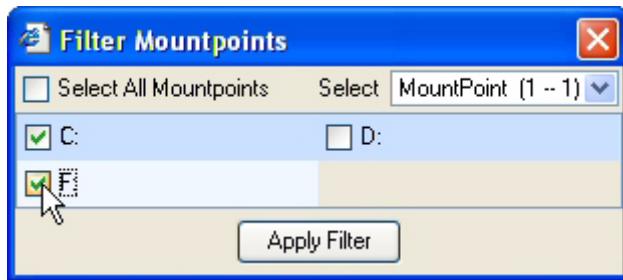
When you first access the Topology tab, you are first told that the mount points have been filtered. If you look at the following figure, only one logical drive is displayed.



**Figure 12** SQL Server without Mount Points

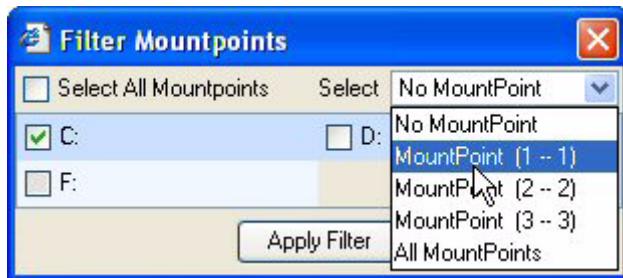
- If you want to view the mount points, click the **Filter** button (Filter icon) in the upper-right corner of the screen. To view the **Filter** button, you need to close the left pane. See the topic, "Opening and Closing the Left Pane" for information on how to close the left pane.

- Select the mount points you want to view by selecting them by letter, as shown in the following figure.



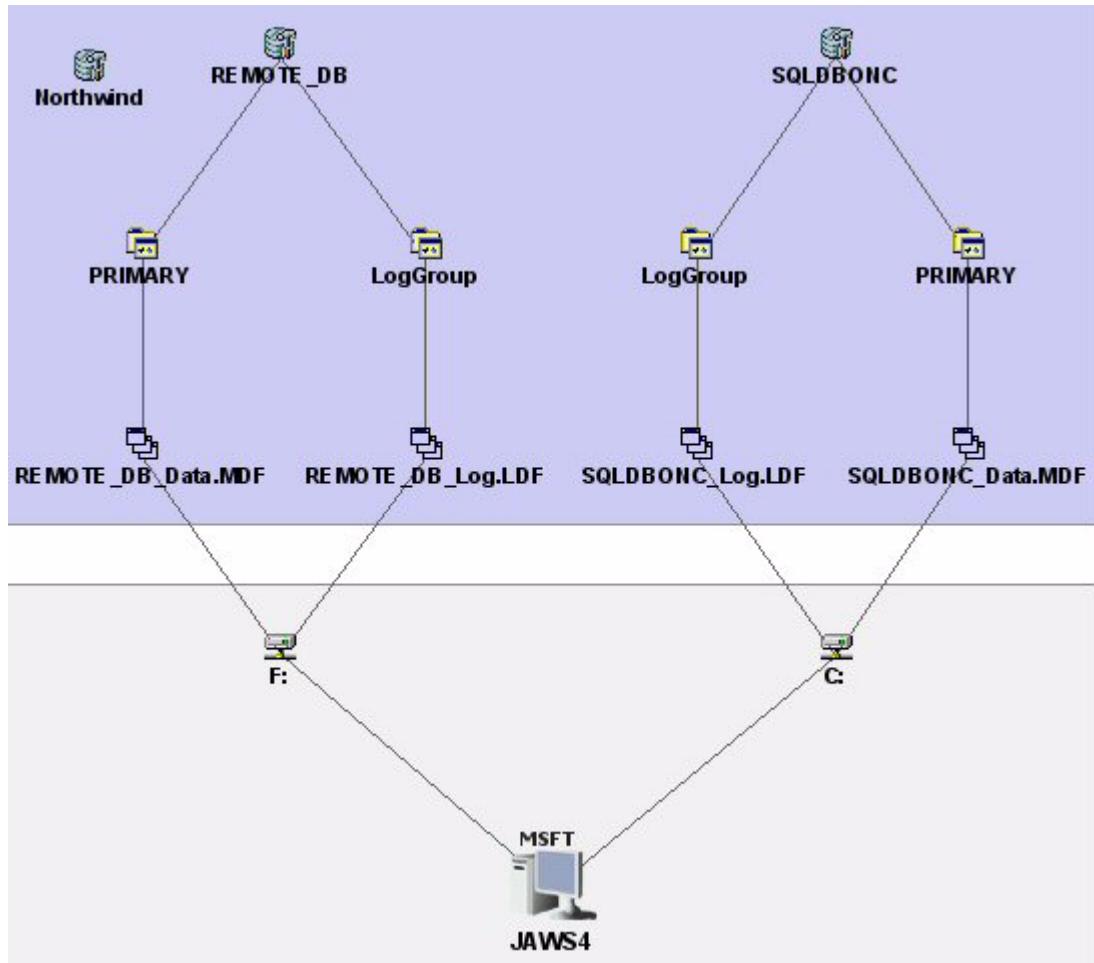
**Figure 13** Selecting Mount Points

- You can also select the mount points from the **Select** combo-box. You can only select one mount point at a time when you select a mount point from the Select menu. For example assume you have mount points C and F selected. If you select a mount point from the Select menu, only one mount point is selected.



**Figure 14** Selecting a Mount Point from the Select Menu

When you are done selecting mount points, click the **Apply Filter** button. In the following figure, mount points C and F were selected, but not D. Since the Northwind database is connected to the D mount point it is not shown connected.



**Figure 15** Topology of SQL Server Database with Two Mount Points

You can obtain property information about each component by double-clicking it.

# 6 Monitoring Sybase

**IMPORTANT:** Depending on your license, monitoring Sybase instances may not be available. See the "List of Features" to determine if you have access to monitoring Sybase instances. The "List of Features" is accessible from the Documentation Center (**Help > Documentation Center** in Storage Essentials).

This chapter describes the following:

- ["Monitoring Sybase Overview" on page 43](#)
- ["Viewing Topology for Sybase" on page 45](#)
- ["Viewing Events for Sybase" on page 49](#)
- ["Viewing Properties" on page 49](#)
- ["Viewing Topology for Sybase" on page 51](#)

## Monitoring Sybase Overview

Before you can monitor Sybase Adaptive Server Enterprise you must:

- Have the license for monitoring Sybase Adaptive Server Enterprise. To determine if your license supports the monitoring of Sybase, see the "List of Features" The List of Features is accessible from the Documentation Center (**Help > Documentation Center** in Storage Essentials).
- Create APPIQ\_USER account on the database to be managed.\*
- Provide the database server name and port number.\*
- Discover the application.\*

\*Refer to the Installation Guide for more information.

The management software for Sybase is a CIM-based application storage management solution that lets you realize the benefits of networked storage by more effectively managing your end-to-end Sybase infrastructure from a single, easy-to-use console. By integrating real time information from storage devices, network components, servers and operating systems with the application database, the management software for Sybase can improve your application's performance, availability and reliability, and maximize your return on the applications storage assets.

To help simplify the management of your Sybase storage, the management software for Sybase provides comprehensive topology visualization from the Sybase database files to the mount point to SAN switches to storage systems. This enables your storage and application administrators to immediately visualize the interdependency of the infrastructure to the application. You will no longer need to cross reference multiple spreadsheets and call multiple people to get an end-to-end picture.

During periods of infrastructure downtime or other times of equipment failures, infrastructure interdependencies are at your fingertips so you can make the correct split second decisions when you are having issues with the infrastructure.

The management software for Sybase provides deep visibility into each component that makes up the Sybase application including Sybase configuration, host configuration, switch configuration, and storage system configuration. This detailed information is provided at every level.

The management software for Sybase is built on CIM, Web-Based Enterprise Management (WBEM), and the Storage Management Initiative (SMI) industry standards for heterogeneous storage network management. The implementation of these standards allows the management software for Sybase to support all your heterogeneous storage needs and ensures your investments in infrastructure can be leveraged in the future.

### **Key Benefits**

- Improved Sybase database performance
- Increased Sybase database availability and reliability
- Maximized return on Sybase storage assets

### **Key Features**

- Database to disk topology view
- Standards-based (CIM/WBEM/SMI-S) management platform
- Database to disk monitoring
- Real time monitoring of Sybase storage
- Web-based global management console
- Ease of install, deployment and manageability

## **Properties of a Sybase Database File**

You can view the properties of a Sybase database file by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Sybase instance in Application Viewer.
3. Click the **Properties** tab.
4. In the Databases table, click a database.
5. In the Database Logical Elements table, click the database file you want to learn more about.

The following properties are displayed:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **DB Logical**
- **VxVolume**
- **Disk Partition**

- **Logical Drive**
- **File Path**
- **Status**
- **Data File Path**
- **Type**

## Viewing Topology for Sybase

This section describes the following:

- ["About the Topology Tab" on page 45](#)
- ["Accessing the Topology Tab" on page 48](#)

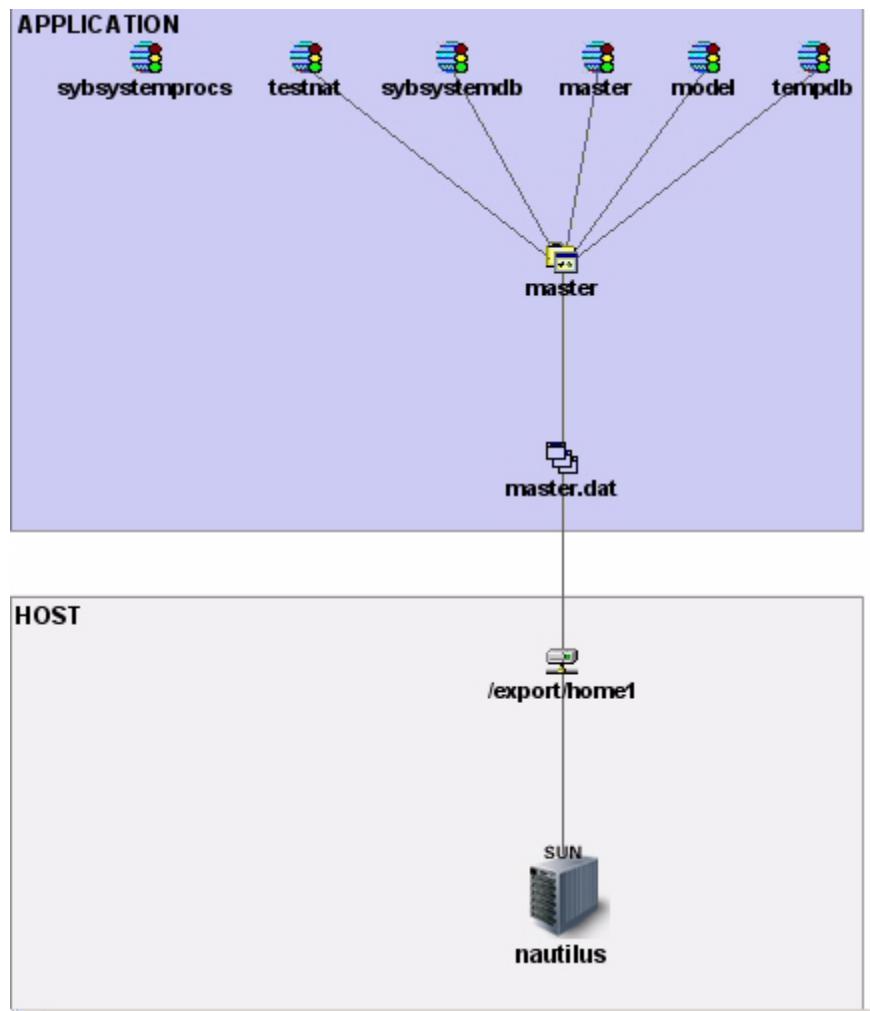
## About the Topology Tab

The Topology tab provides a graphical representation of your storage network.

- **Left pane** - Provides a path view of the Sybase database. When you select an element in the left pane, its location is shown in the right pane.
- **Right pane** - Provides a logical diagram of the storage network. From the Topology tab, you can determine the location of a device on the network. For example, you could use the Topology tab to find which database file corresponds to a database.

From the Topology tab, you can obtain information about the items in the topology by double-clicking its icon in the topology.

When you first access the Topology tab, you are first told that the mount points have been filtered. If you look at the following table, only one logical drive is displayed. One of the database instances, sybsystemprocs, is shown disconnected because its logical drive is not displayed.



**Figure 16** Topology of Sybase Database without Mount Points

- If you want to view the mount points, click the **Filter** button (Filter icon) in the upper-right corner of the screen. To view the **Filter** button, you need to close the left pane. See the topic, "Opening and Closing the Left Pane" for information on how to close the left pane.

- Select the mount points you want to view by selecting them by letter, as shown in the following figure.



Figure 17 Selecting Mount Points

- You can also select the mount points from the **Select** combo-box.

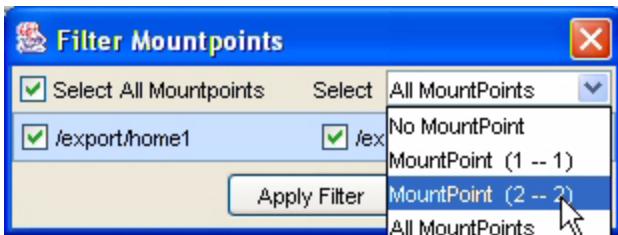
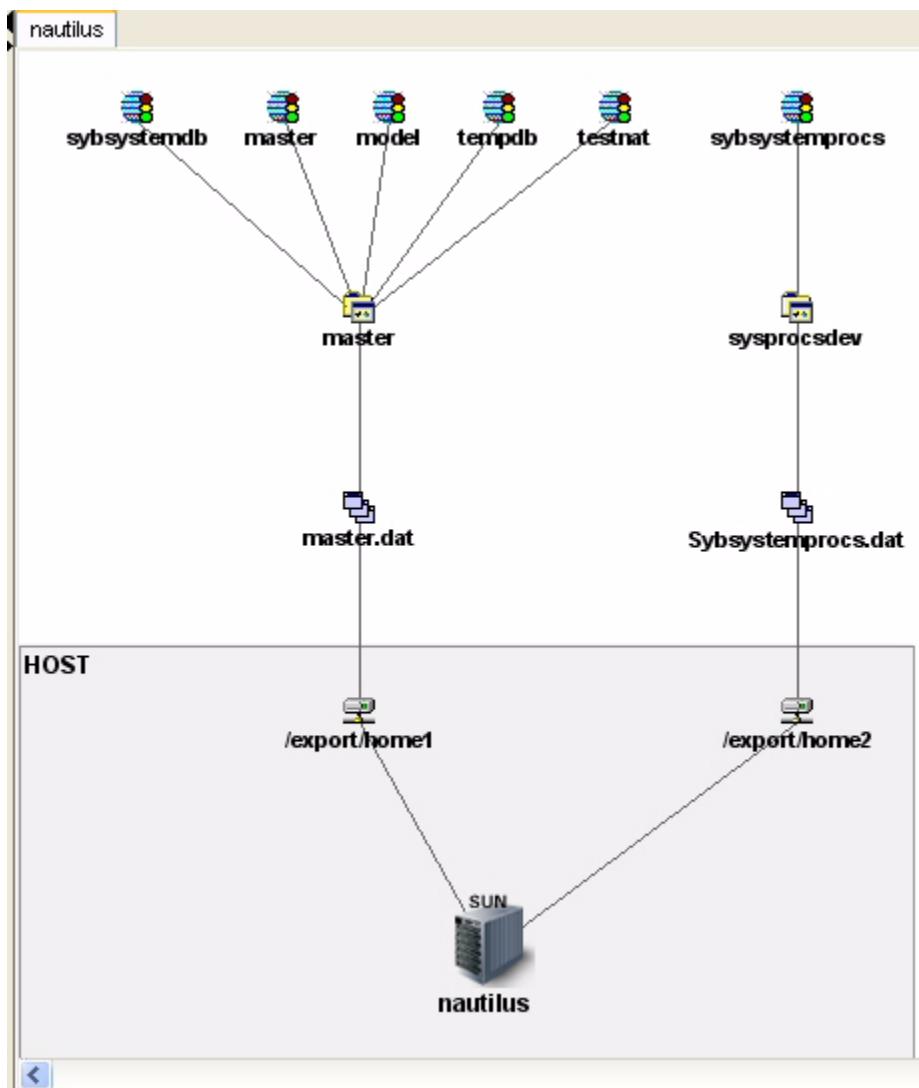


Figure 18 Selecting Mount Points from Combo Box

- When you are done selecting mount points, click the **Apply Filter** button. In the following figure, all of the mount points were selected. Notice that all database control files are now displayed and the database instance **sybsystemprocs** is shown connected to its logical drive.



**Figure 19** Topology of Sybase Database with Mount Points

You can obtain property information about each component by double-clicking it.

## Accessing the Topology Tab

Access the Topology tab by doing one of the following:

- Clicking a Sybase instance under the Sybase node in Application Viewer and clicking the **Topology** button.

- Double-clicking a Sybase instance in System Manager and then clicking the **Topology** tab.

You can view property information for storage groups and stores by double-clicking their icons in the Topology tab.

## Viewing Events for Sybase

You can view events pertaining to a Sybase database and its dependent elements, such as storage systems by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Expand the node for the Sybase database from which you want to obtain event information.
3. Click **Path Events**.

The events for that Sybase database and its dependent elements are displayed in the right pane.

The management server provides the following information about the events:

- **ID** - The identification number assigned to the event
- **Element** - The source of the event. An element can be a switch, host, application, fabric or anything else on the network.
- **Severity** - Provides the severity level
- **Time** - The time the event was recorded.
- **Summary Text** - A brief explanation of the event. When you click the summary text, the details of the event are displayed.
- **Element Type** - Specifies whether the source of this event is an application, a host, etc.
- **Rank** - The cost implication

Refer to the Chapter "Managing Events" in the User Guide for more information.

## Viewing Properties

This section describes the following:

- ["Properties of a Sybase Instance" on page 49](#)
- ["Properties of a Sybase Database" on page 50](#)
- ["Properties of a Sybase Database File" on page 51](#)

## Properties of a Sybase Instance

You can view the properties of a Sybase instance on a host by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Sybase instance in Application Viewer.
3. Click the **Properties** tab.

The following properties are displayed:

- **Custom Name** - To make it easier to identify the element instance in the system, assign the instance a Custom Name. The Custom Name also appears in Chargeback. Since all users

query the same database, this name is displayed to others using the software. As a result, you might want to make them aware of the name.

- **Business Cost** - The management server lets you assign a business cost to an application, including virtual applications. This information is used in Event Manager for ranking events from elements. Event Manager determines the rank of an event by taking into account the business cost of the application and the severity of the event. You can sort events by rank in Event Manager by clicking the Rank column. See the topic, "Assigning a Business Cost to an Application" for more information.
- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **Description**
- **Target Operating System**
- **Identification Code**
- **Product Name**
- **Serial Number**
- **Build Number**
- **Version**
- **Host** - To learn more about the host, click its link.
- **Database Type**
- **Databases** - To learn more about a database, click its link in the Databases table.
- **Update Element Data** - To update the displayed properties, click the **Update Element Data** button at the bottom of the screen. The management server gathers new and changed details from the element and then redraws the topology with the updated information.

## Properties of a Sybase Database

You can view the properties of a Sybase database by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Sybase instance in Application Viewer.
3. Click the **Properties** tab.
4. In the Databases table, click a database you want to learn more about.

The following properties are displayed:

- **Vendor**
- **Contacted**
- **Record Created**

- **Discovery Status**
- **Install Date**
- **Sybase Instance**
- **Name Detected**
- **OID**
- **Description**
- **Type**
- **Database Logical Elements** - To learn more about a Sybase database file, click its link.

## Properties of a Sybase Database File

You can view the properties of a Sybase database file by doing the following:

1. Access Application Viewer by clicking **Tools > Storage Essentials > Application Viewer**.
2. Click the Sybase instance in Application Viewer.
3. Click the **Properties** tab.
4. In the Databases table, click a database.
5. In the Database Logical Elements table, click the database file you want to learn more about.

The following properties are displayed:

- **Vendor**
- **Contacted**
- **Record Created**
- **Discovery Status**
- **Install Date**
- **Name Detected**
- **OID**
- **DB Logical**
- **VxVolume**
- **Disk Partition**
- **Logical Drive**
- **File Path**
- **Status**
- **Data File Path**
- **Type**

## Viewing Topology for Sybase

This section describes the following:

- “[About the Topology Tab](#)” on page 52
- “[Accessing the Topology Tab](#)” on page 55

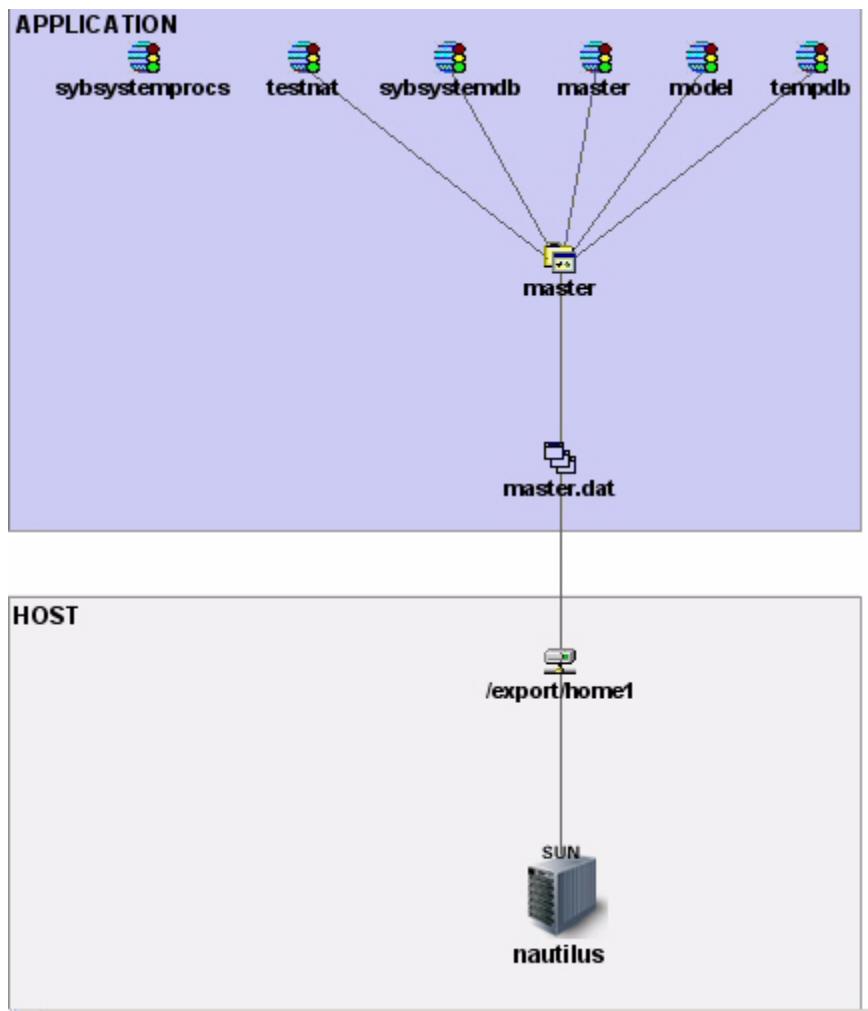
## About the Topology Tab

The Topology tab provides a graphical representation of your storage network.

- **Left pane** - Provides a path view of the Sybase database. When you select an element in the left pane, its location is shown in the right pane.
- **Right pane** - Provides a logical diagram of the storage network. From the Topology tab, you can determine the location of a device on the network. For example, you could use the Topology tab to find which database file corresponds to a database.

From the Topology tab, you can obtain information about the items in the topology by double-clicking its icon in the topology.

When you first access the Topology tab, you are first told that the mount points have been filtered. If you look at the following table, only one logical drive is displayed. One of the database instances, sybsystemprocs, is shown disconnected because its logical drive is not displayed.



**Figure 20** Topology of Sybase Database without Mount Points

- If you want to view the mount points, click the **Filter** button (Filter icon) in the upper-right corner of the screen. To view the **Filter** button, you need to close the left pane. See the topic, "Opening and Closing the Left Pane" for information on how to close the left pane.

- Select the mount points you want to view by selecting them by letter, as shown in the following figure.



Figure 21 Selecting Mount Points

- You can also select the mount points from the **Select** combo-box.

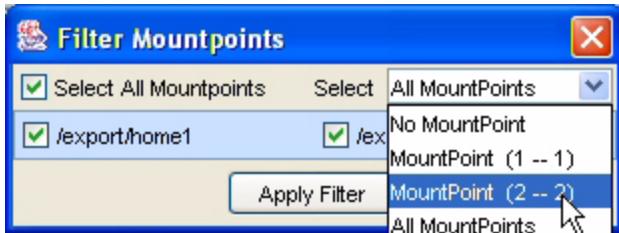
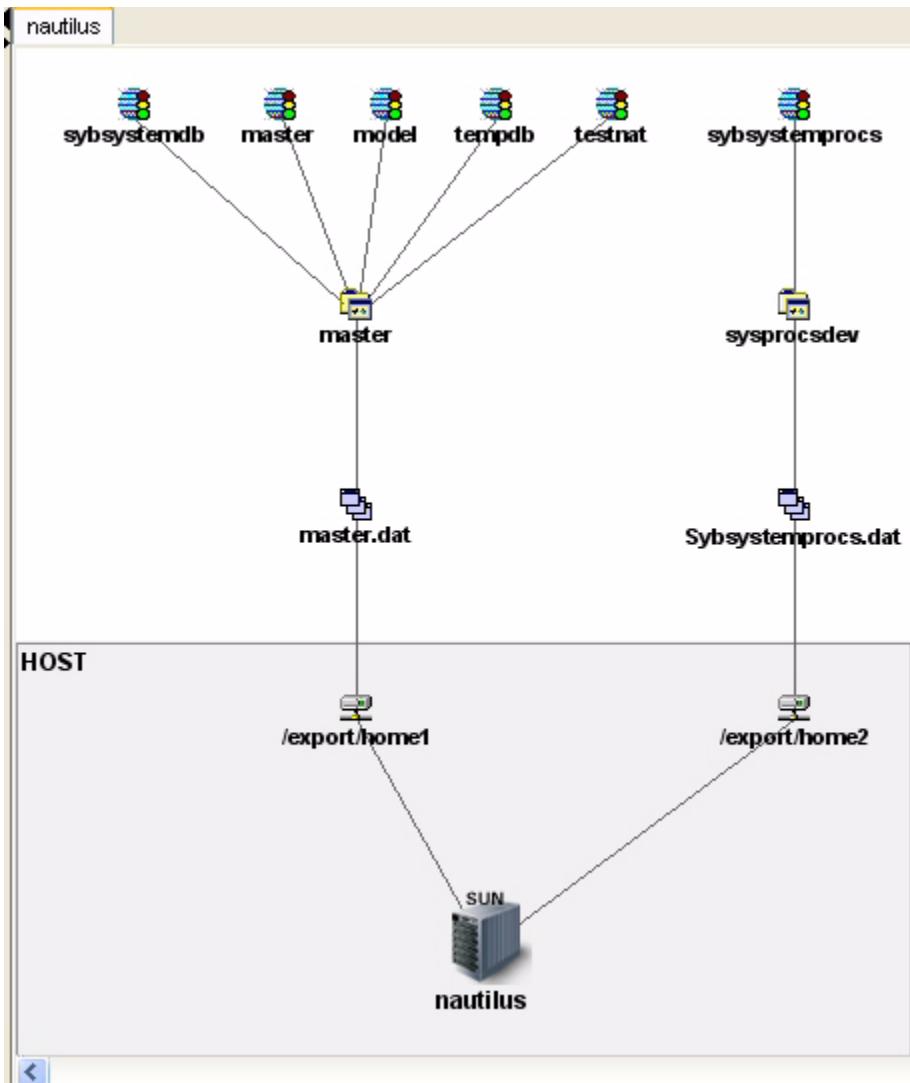


Figure 22 Selecting Mount Points from Combo Box

- When you are done selecting mount points, click the **Apply Filter** button. In the following figure, all of the mount points were selected. Notice that all database control files are now displayed and the database instance **sybsystemprocs** is shown connected to its logical drive.



**Figure 23** Topology of Sybase Database with Mount Points

You can obtain property information about each component by double-clicking it.

## Accessing the Topology Tab

Access the Topology tab by doing one of the following:

- Clicking a Sybase instance under the Sybase node in Application Viewer and clicking the **Topology** button.

- Double-clicking a Sybase instance in System Manager and then clicking the **Topology** tab.

You can view property information for storage groups and stores by double-clicking their icons in the Topology tab.

# Index

## A

about  
Application Viewer 3  
Topology Screen 17  
accessing  
Exchange host properties 26  
Exchange storage volume properties 26  
Exchange store properties 27  
Oracle instance properties 12  
tablespace 16  
Topology tab 33  
adding  
domain controller 24  
TNS Listener Port 10  
applications  
events 5  
navigation 4  
overview 1  
summary 3  
audience v  
authorized reseller, HP vii

## C

changing  
domain controller 24  
TNS Listener Port 10  
CIM v  
control group  
properties 13  
conventions  
document vi  
text symbols vi

## D

database control file 14  
database control file group 13  
database file  
properties of 35, 38, 44, 51  
deleting  
TNS Listener Port 10  
document

conventions vi  
prerequisites v  
related documentation v  
documentation, HP web site v  
domain controller  
access 24  
accessing 24  
domain controller access 24

## E

events  
applications 5  
Microsoft Exchange 24  
viewing 10, 36, 49

Exchange  
instance path 34  
path 34  
topology 28  
Exchange host properties  
viewing 26  
Exchange storage volume  
properties 26  
Exchange store  
properties 27

## F

file servers 3

H  
help, obtaining vii  
host elements  
viewing 21

HP  
authorized reseller vii  
storage web site vii  
Subscriber's choice web site vii  
technical support vii

## I

instance path  
Exchange 34

## M

management software for Exchange  
overview 23  
Microsoft Exchange  
topology 28  
Microsoft Exchange instances 3  
modifying  
domain controller 24  
TNS Listener Port 10  
monitoring  
applications 1  
Oracle 9  
Oracle instance 10  
SQL Server 35  
Sybase 43

## N

navigation  
applications 4  
Networking v  
number of  
file servers 3  
Microsoft Exchange instances 3  
Oracle instances 3  
virtual applications 3

## O

Oracle  
monitoring 9  
Oracle host  
properties 12  
Oracle instance  
control group 13  
database control file 14  
monitoring 10  
properties 12  
redo file 15  
redo group 15  
tablespace 16  
tablespace file 16  
Oracle instances 3  
Oracle TNS Listener Port 10  
overview  
management software for Exchange 23  
monitoring applications 1  
SQL Server 35

## Sybase 43

## P

path  
Exchange 34  
host 34  
prerequisites v  
properties  
control group 13  
database control file 14  
database control file group 13  
Exchange storage volume 26  
Exchange store 27  
Oracle instance 12  
redo file 15  
redo group 15  
SQL Server 38  
SQL Server database file 35, 38  
SQL Server instance 37  
Sybase 50  
Sybase database file 44, 51  
Sybase instance 49  
tablespace 16  
tablespace file 16

## R

redo file  
properties 15  
redo group  
properties 15  
related documentation v  
removing  
TNS Listener Port 10

## S

SAN v  
SQL Server  
accessing Topology tab 38  
database file 35, 38  
instance properties 37  
overview 35  
properties of 38  
Topology tab 39  
Subscriber's choice, HP vii  
summary  
applications 3

## Sybase

- accessing Topology tab [48, 55](#)
- database file [44, 51](#)
- instance properties [49](#)
- overview [43](#)
- properties of [50](#)
- Topology tab [45, 52](#)
- symbols in text [vi](#)

## T

- tablespace
  - properties [16](#)
- tablespace file
  - properties [16](#)
- technical support, HP [vii](#)
- text symbols [vi](#)
- TNS Listener Port
  - changing [10](#)
- Topology tab [28](#)
  - about [17](#)
  - accessing [33](#)
  - SQL Server [39](#)
  - Sybase [45, 52](#)

## V

- viewing
  - events [5](#)
  - events for SQL Server [36](#)
  - events for Sybase [49](#)
  - Exchange host properties [26](#)
  - Exchange host's path [34](#)
  - Exchange instance path [34](#)
  - Exchange storage volume properties [26](#)
  - Exchange store properties [27](#)
  - host elements [21](#)
  - Oracle events [10](#)
  - Oracle instance properties [12](#)
  - tablespace [16](#)
  - Topology tab [33](#)
  - virtual applications [3](#)

## W

- web sites
  - HP documentation [v](#)
  - HP storage [vii](#)
  - HP Subscriber's choice [vii](#)



## Figures

|    |   |    |
|----|---|----|
| 1  | Viewing Information About an Event . . . . .                          | 6  |
| 2  | Topology of Oracle Database without Mount points . . . . .            | 18 |
| 3  | Selecting Mount Points . . . . .                                      | 19 |
| 4  | Selecting Mount Points from Combo Box. . . . .                        | 19 |
| 5  | Topology for an Oracle Instance with Mount Points . . . . .           | 20 |
| 6  | Topology of Microsoft Exchange without Mount Points . . . . .         | 29 |
| 7  | Selecting Mount Points . . . . .                                      | 30 |
| 8  | Selecting Mount Points from Combo Box. . . . .                        | 30 |
| 9  | Topology of Microsoft Exchange with Mount Points<br>(Figure 1 of 3)31 |    |
| 10 | Topology of Microsoft Exchange with Mount Points<br>(Figure 2 of 3)32 |    |
| 11 | Topology of Microsoft Exchange with Mount Points<br>(Figure 3 of 3)33 |    |
| 12 | SQL Server without Mount Points . . . . .                             | 40 |
| 13 | Selecting Mount Points . . . . .                                      | 41 |
| 14 | Selecting a Mount Point from the Select Menu . . . . .                | 41 |
| 15 | Topology of SQL Server Database with Two Mount Points. . . . .        | 42 |
| 16 | Topology of Sybase Database without Mount Points. . . . .             | 46 |
| 17 | Selecting Mount Points . . . . .                                      | 47 |
| 18 | Selecting Mount Points from Combo Box. . . . .                        | 47 |
| 19 | Topology of Sybase Database with Mount Points . . . . .               | 48 |
| 20 | Topology of Sybase Database without Mount Points. . . . .             | 53 |
| 21 | Selecting Mount Points . . . . .                                      | 54 |
| 22 | Selecting Mount Points from Combo Box. . . . .                        | 54 |
| 23 | Topology of Sybase Database with Mount Points. . . . .                | 55 |



## Tables

|   |  |    |
|---|--|----|
| 1 | Document conventions . . . . .             | vi |
| 2 | Topics Covered in This Book . . . . .      | 1  |
| 3 | About the Icons in Event Manager . . . . . | 5  |

